

D E F E N S E  
A N D A R M S  
C O N T R O L  
S T U D I E S  
P R O G R A M

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*Annual Report*

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MASSACHUSETTS  
INSTITUTE  
OF TECHNOLOGY

1994-1995

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**DEFENSE AND ARMS CONTROL**  
**STUDIES PROGRAM**

**T**he Defense and Arms Control Studies (DACS) Program is a graduate-level, research and educational program based at the MIT Center for International Studies. It traces its origins to two initiatives. One is the teaching on international security topics that Professor William Kaufmann began in the 1960s in the MIT Political Science Department. The other is the MIT-wide seminars on nuclear weapons and arms control policy that Professor Jack Ruina and Professor George Rathjens created in the mid 1970s.

The Program's teaching ties are primarily but not exclusively with the Political Science Department at MIT. The DACS faculty, however, includes natural scientists and engineers as well as social scientists. Distinguishing the Program is its ability to integrate technical and political analyses in studies of international security issues.

Several of the DACS faculty members have had extensive government experience. They and the other Program faculty advise or comment frequently on current policy problems. But the Program's prime task is educating those young men and women who will be the next generation of scholars and practitioners in international security policy making. The Program's research and public service activities necessarily complement that effort.

The Center for International Studies is a major unit of the School of Humanities and Social Sciences at MIT and seeks to encourage the analysis of issues of continuing public concern. Key components of the Center in addition to DACS are Seminar XXI, which offers training in the analysis of international issues for senior military officers, government officials, and industry executives; and the MIT Japan Program, which conducts research and educational activities to further knowledge about Japanese technology, economic activities, and politics.

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COVER PHOTO: CIVIL WAR MONUMENT  
ORLEANS, MASSACHUSETTS

## REPORT OF THE DIRECTOR

**W**ar is still very much on our agenda and that of the nation. We search for the path to peace by trying to understand war — how it starts, how it is fought, and how its memory lingers in the minds of the participants, shaping future policy. War can be avoided, but one must know both the steps to take and the price to pay.

This being the 50th anniversary of the climactic battles of the Second World War, it is not surprising that we would spend some time reflecting on the lessons of the past. Several of us were participants in the series of Technology Day panels that marked MIT's remembrance of the Second World War. It was a war that had a huge impact on MIT, bringing research resources and policy responsibilities that were unparalleled in the Institution's history. More important, of course, it was the war that brought the United States permanently onto the world stage and taught the nation how to acquire tremendous military might. And best of all, it was a war that vanquished two truly evil empires. Everyone at the celebration thought the war necessary, with unchallengeable justifications and a wonderful outcome. Yet, it is striking to recall how difficult it was to get the United States to enter the conflict. The world was in flames for more than two years before Pearl Harbor. Most of Europe had been conquered. Russia by that time had been attacked. Britain, our closest ally, was mortally threatened. Large pieces of China had been seized. Jews and others were being enslaved and killed. Nevertheless, it took a direct attack on our territory by Japan and a declaration of war against us by Germany for the United States to fight. Apparently, even the really good wars look unappealing close up.

One planned Second World War battle did not take place — the invasion of Japan scheduled for Fall 1945. Instead, Japan surrendered on August 15, 1945 after our second atomic bomb attack. Norman Polmar, the coauthor of a forthcoming book on the war's end, gave two well attended seminars at the Program on the factors that hastened Japan's surrender. In intense discussions, we debated the effects and morality of the strategic bombing campaign against Japan, as well as the influence of the submarine blockade, the Soviet entry into the Pacific War, the bloody fight for Okinawa, and massing of the invasion forces on the war's end. It was, of course, an over-determined outcome.

Although the efficacy of strategic bombing is frequently questioned, it is America's preferred way of fighting. We selected not the lessons of the Second World War bombing campaign, but those of the Gulf War, the latest exercise of strategic bombing doctrines, as the theme of the 1995 General James H. Doolittle dinner and workshop, an event DACS cosponsored with the Olin Institute of Strategic Studies at Harvard and the Center for Science and International Affairs at Harvard's Kennedy School. Many of the military leaders of the air campaign in the Gulf War as well as several prominent analysts of the war participated in the all day event which was held on April 19, 1995. Our keynote speakers were Lieutenant General Calvin Waller, who was General Schwartzkoff's deputy, and Lieutenant General Thomas Kelly, who was head of operations on the Joint Staff during the war and General Powell's chief spokesman. We discovered that one of the consequences of the wave of jointness which has recently swept over our armed services is that it is difficult indeed these days to generate

public debate among the services on even controversial issues like the military utility of strategic bombing.

The environmental legacy of war and the preparation for war was the subject of another conference we organized, this one held in October 1994 with the assistance of ICF Kaiser International. Specifically the conference examined organizational issues affecting the Department of Defense and Department of Energy facility cleanup efforts, both \$5 billion programs. More than 60 experts assembled to consider how the departments cope with these highly visible and costly activities. For the Department of Defense, environmental cleanups are an unwelcome diversion from preferred core missions. For Energy, the effort is a politically charged substitute for a preferred, but fast disappearing weapons mission.

Our third conference had a current policy theme — the force projection capabilities and experiences of the U.S. military. With the end of the Cold War, the U.S. has become involved in a number of half war, half humanitarian ventures in places like Rwanda, Somalia and Bosnia which are difficult to get to and, once there, even more difficult to remain. The conference, which was cosponsored by the Olin Institute for Strategic Studies and which was supported by the Army War College, examined the several forced entry capabilities that the U.S. maintains, plans to enhance air and sea lift resources, and the policy problems that peacekeeping, peacemaking missions generate. One clear trend noted at the conference and in our seminars this year is the increased use of contractors for logistical sustainment in order to lower the visibility of the U.S. presence in these ever dangerous situations. But in the end, questions remain about the need for and effectiveness of our participation. Given our military's capabilities, many want the U.S. involved to save

lives. Even limited U.S. presence though is itself often a cause for continuing conflict. Moreover, real change in the affected countries may require a U.S. presence for much longer and at a greater cost than any U.S. administration is likely to be able to sustain politically.

U.S. policy for coping with a post-Cold War world burdened with failing states, ethnic conflicts, and desperate refugees, but no clear cut military threat to our national survival, is a major research focus for DACS. Barry Posen, in particular, has taken the lead in helping us to understand the strategic options available to the nation. In a series of important papers he has examined closely the political and military implications of various possible national strategies, ranging from isolationism to multi-nationalism. He has also thought carefully about the uses of U.S. military capabilities to affect outcomes in the ethnic disputes that so dominate the foreign policy agenda. And he has participated effectively in the debate about the expansion of NATO.

The multinational option has attracted the attention of Carl Kaysen and George Rathjens who are heading a major study of the feasibility of an United Nations

REPORT OF  
THE DIRECTOR



*The U.S. has tremendous capabilities.*

standing force to allow for rapid military intervention in emerging crisis situations. The study, which is partially based at the American Academy of Arts and Sciences, is examining the training, support, and command and control requirements for a brigade-size multinational unit that would avoid the relatively slow and ad hoc process for assembling current intervention forces. They plan to follow up on this work in an analysis of trans-national mechanisms for limiting conflict that the MIT Center for International Studies is organizing.

Interestingly, the U.S. defense budget seems little affected by the debates about intervention. If the U.S. were to be committed to interventions for humanitarian and/or democratization purposes either unilaterally or multilaterally, the defense budget would need to be expanded or at least undergo large internal reallocations. Alternatively, if the U.S. keeps pulling back on these commitments, as currently seems to be the case, the budget seems vastly oversized. Instead the defense budget is being protected from pressures to reduce federal spending in large part, I believe, as

a legacy of the poisoned politics surrounding the Vietnam War. The Republicans, as that war's residual hawks, became the Friends of the Military Party, the political party ever protective of the military's reputation and ever sensitive to its preferences. The Democrats, as the war's visible doves, acquired the opposite political identification, that of party for those who are always critical of military requests and advice. In control of the Congress after 40 years of being the minority, the Republicans now can hardly abandon the military. In contrast, the Democrats must overcome the perception that they are too squeamish and inexperienced to be entrusted with the responsibilities for maintaining national security. Particularly, they cannot be seen as rejecting the advice of a military whose reputation was rehabilitated in the Gulf War, a war the Democrats initially failed to support and one that ranks close to the Second World War in martial pride. Thus the defense budget is being supported at levels that are still higher than the lowest experienced during the Cold War despite the fact that neither the Warsaw Pact nor the Soviet Union is still in existence.



BOSTON GLOBE

*The world has horrific problems.*

My own work has focused on a policy for restructuring the defense industries. The recent merger wave in defense notwithstanding, production capacity vastly exceeds conceivable demand. The U.S. still has eight lines producing military aircraft, six producing warships, five producing military helicopters, and four producing tactical missiles and the need for half of these. Whereas once we relied on arsenals to keep the weapon technologies moving ahead, though slowly, between wars, we are now dependent for such advances upon private firms that require



REPORT OF  
THE DIRECTOR

*The current F-16 line and the future hope.*

LOCKHEED, FT. WORTH

multi-billion dollar production contracts to keep in business. Conversion is hardly an option for these firms. Rather when faced with a downturn in defense allocations, they intensify their lobbying efforts to keep the contracts flowing. Unless they are constrained, both the readiness of U.S. forces and the opportunities to explore new technologies will be lost in the drive to provide the needed dollars. Despite administration claims, neither enactment of acquisition reform nor the development of lean production techniques offer much hope to deal with the problem, given its scale. Rather, the need is to buy-out the excess capacity and the dependency of the local communities, and thus the political demand to continue old projects or to generate new ones. A smaller, more secure industrial base should be the goal. In essence, we need to recreate the arsenal system we so recently dismantled.

Some weapons technology clearly will continue to be developed. The Republicans have an often expressed commitment to promoting ballistic missile defenses. The Clinton Administration, while indicating skepticism about area defenses has pressed ahead with the development of theater ballistic missile defenses. Our technology group led by Ted Postol has long been active on ballistic defense issues. The group's recent work on theater missile defense systems demonstrated how systems being advanced by the administration jeopardize the Anti Ballistic Missile Treaty provisions by incorporating some area defense capabilities against strategic missiles. This work has gained wide attention and may force public debate about the value of maintaining a fully enforced Treaty.

Ballistic missile defenses are of continuing interest because ballistic missiles are a means for delivering

weapons of mass destruction. Since its inception, DACS has been an important source of analysis of policy issues relating to such weapons, especially nuclear weapons. Currently three DACS faculty members are specializing in these issues. Marvin Miller is working on proliferation control problems including that posed by the training in the relevant technologies of students from potential proliferation states at U.S. and European universities. Jack Ruina and George Rathjens are examining the likely reactions of Britain and France to possible modifications in the ABM Treaty that might be made to accommodate some forms of missile defense.

The greatest proliferation worry is the spread of technology and materials from Russia which faces economic hardship and a difficult transition to democracy. Our expertise on the Russian situation is maintained by Stephen Meyer. Students under his direction have been studying the conversion of Russian defense industries and the restructuring of the Russian military. Neither realignment is progressing rapidly.

If Russia is an old problem that persists, Asia is often viewed as the source of future conflicts, a new problem emerging. The DACS Working Group on Asian Security Issues, led by Richard Samuels, the head of the MIT Political Science Department, and an expert on Japan politics and policy, is growing in popularity among our students. Several security related dissertations are likely to be produced by group participants.

One way we keep abreast of security issues is by undertaking visits to military installations and defense production lines. Some of us visited the Joint Readiness Training Center at Fort Polk, Louisiana in the Fall while others visited the Submarine Base at Groton, Connecticut and a carrier off Virginia in the Spring. Participants in my Future of the Defense Industries Working Group toured and held discussions at Boeing, AIL, Lockheed Martin, McDonnell Douglas and Airbus facilities. As our photo later in this report indicates, Ted Postol and George Lewis visited China.

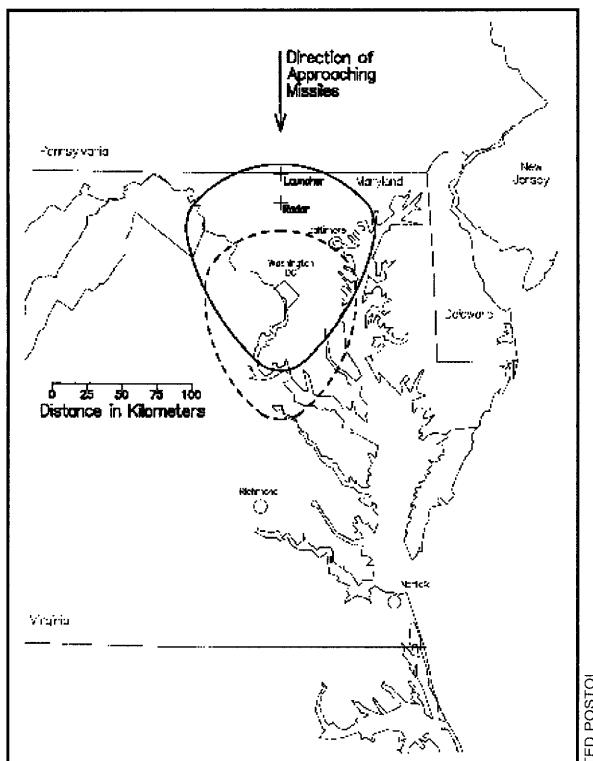
Another way we keep up is by welcoming visitors here. This year we hosted an Army Fellow, our first, Colonel Mike McKeeman, now assigned to Fort Sill

Oklahoma, and Navy Captain Richard Miller who is now on the Navy Staff in Washington. Visiting with us from China is Li Bin, a physicist who works as a research fellow at a security studies program at the Beijing Institute of Applied Physics and Computational Mathematics and is currently studying the verification of a CTB. Anatoli Diakov, a physicist from Russia who organized the Center for Arms Control, Energy and Environmental Studies at the Moscow Institute of Physics and Technology spent several months at DACS performing independent research on plutonium disposition and the economics of nuclear fuel cycles. In addition we had special seminars from Major General Charles D. Link, Air Force Special Assistant for Roles and Missions; Admiral Henry Chiles, Commander in Chief, U.S. Strategic Command; Admiral William Flanigan, Commander in Chief of the U.S. Atlantic Fleet, and Commander, NATO Western Frontier; and Lieutenant General J.T. Scott, Commanding General of the U.S. Army Special Operations Command.

There are two senior staff changes to report. George Lewis has shifted to DACS faculty status and was named in January the Assistant Director of the Program. George is a physicist and a key participant in our defense technology studies. Stephen Van Evera, Associate Professor of Political Science at MIT and a leading international relations scholar has also joined our faculty. His forthcoming book on the causes of war has already had considerable influence on the field in manuscript form.

Our public service work this year included the preparation of a report on the role Hanscom Air Force Base plays in furthering the development of command, control, communications and intelligence systems. Central to this task was Sanford Weiner, a DACS affiliate and Visiting Scholar at the Center for International Studies. Sandy learned much about the evolution of JSTARS and system engineering concepts in the process.

DACS publications include a working paper series; *Breakthroughs*, our research journal; Seminar and Conference summary reports, and *DACS Facts*, our monthly newsletter. The main publications are circulated to a list that now approaches 2,000 policy specialists, academics, reporters, and officials.



*Footprints for proposed missile defense system.*

Our most important product, however, is our students. We help train the next generation of security policy makers and professors. Despite predictions that interest in security studies would fade, after the Cold War, we find a ready market. The current student count is 32, nearly all of whom are doctoral candidates. And I firmly believe we still attract the very best.

Les Aspin, MIT graduate, former chair of the House Armed Services Committee, and former Secretary of Defense, died this year. I had the good fortune of knowing him for most of his career. There was no one more intrigued with the decision making process for defense, more enthusiastic about his several roles in that process, and more willing to debate the issues than Les. One did not have to agree with all of his judgements to admire his considerable abilities.

I would like to thank Ken Oye, Director of the MIT Center for International Studies, for his continuing support of the program. Among others who provide invaluable assistance to our efforts are Michael Desch and Steve Rosen of the Olin Institute at

Harvard, our partners on several projects including the Future of War seminars; Owen Cote, Steve Miller, and Michael Brown at the Security Studies Program at the Harvard Center for Science and International Affairs, our friendly neighbors; Lieutenant General Bernard Trainor (USMC Ret), the Director of the National Security Fellows Program at the Kennedy School, who shares generously of his time and fellows; and John White, now Deputy Secretary of Defense but recently at the Kennedy School, who as head of the Roles and Missions Commission had the job we all wanted and who did at least as well as anyone of us could expect to have done with it.

Of course we must save our greatest appreciation for our benefactors. The Carnegie Corporation of New York, the Ford Foundation, and the DACS Corporate Consortium including Lincoln Laboratory, Lockheed Fort Worth, and Newport News Shipbuilding Company are our program supporters. In addition DACS received financial assistance this year for specific projects from the Commonwealth of Massachusetts, ICF Kaiser International, the Army War College, the U.S. Air Force Institute for National Security Studies, the Office of Net Assessment, the American Academy of Arts and Sciences, the Ploughshares Fund, the John Merck Foundation, the John D. and Catherine T. MacArthur Foundation, and the W. Alton Jones Foundation. We are most grateful.

Harvey M. Sapolsky

**REPORT OF  
THE DIRECTOR**

## FACULTY

**HARVEY M. SAPOLSKY** is Professor of Public Policy and Organization in the Department of Political Science and Director of both the Defense and Arms Control Studies Program and the MIT Communications Forum. Dr. Sapolsky completed a B.A. at Boston University and earned an M.P.A. and Ph.D. at Harvard University. He has worked in a number of public policy areas, notably health, science, and defense and specializes in effects of institutional structures and bureaucratic politics on policy outcomes. In the defense field he has served as a consultant to the Commission on Government Procurement, the Office of the Secretary of Defense, the Naval War College, the Office of Naval Research, and the RAND Corporation, and has lectured at all of the service academies. He is currently focusing his research on three topics: interservice and civil/military relations; the impact of casualties on U.S. use of force; and the future structure of defense industries. In July 1989 he succeeded Professor Ruina as Director of the MIT Defense and Arms Control Studies Program. Professor Sapolsky's most recent defense-related book is titled *Science and the Navy*, and is a study of military support of academic research.



MIKE DESCH

*Director learns about helicopters.*

**CARL KAYSEN** is David W. Skinner Professor of Political Economy Emeritus in the Program in Science, Technology, and Society and a Senior Lecturer at the MIT Center for International Studies. Dr. Kaysen earned his B.A. in Economics at the University of Pennsylvania, and his Ph.D. at Harvard University, where he was an economics professor from 1950-1966. From 1966 until 1976, when he came to MIT, he was Director of the Institute for Advanced Study in Princeton and from 1961-1963 he was the Deputy Special Assistant for National Security Affairs to President Kennedy. He has served as a consultant to RAND, the Defense Department, and the CIA. A member of the Committee on Security Studies of the American Academy of Arts and Sciences, Dr. Kaysen is currently engaged in organizing a project under the Committee's auspices on emerging norms of justified international intervention.

TED POSTOL

*George Lewis in China.*

**GEORGE N. LEWIS** spent five years as a research associate in Cornell University's Department of Applied Physics after receiving his PhD in experimental solid state physics from there in 1983. Prior to coming to MIT in 1989 he was a fellow in the Peace Studies Program at Cornell and at the Center for International Security and Arms Control at Stanford. His research has included studies of arms control and verification for sea-launched cruise missiles and other non-strategic nuclear weapons, air surveillance and early warning systems, and the effectiveness of tactical missiles and of defenses against such missiles (with an emphasis on the performance of Patriot in the 1991 Gulf War). Dr. Lewis is now conducting research on a number of issues relevant to ballistic missile defense.

**STEPHEN M. MEYER** is Professor of Defense and Arms Control Studies and Director of Soviet Security Studies at MIT. Prior to joining the MIT faculty in 1979, he was a post-doctoral fellow at Harvard University's Center for Science and International Affairs. He received his Ph.D. at the University of Michigan, Ann Arbor in 1978. Dr. Meyer's areas of particular interest are defense decision-making, military economics, force planning and analysis, and arms control in the former Soviet Union. His current work examines the rise and fall of Soviet military power and the ways in which domestic organizations and institutions influenced Soviet defense policy. Dr. Meyer serves as an advisor on Soviet security affairs to several U.S. government agencies and has testified numerous times in open and closed hearings before the House Armed Services Committee, the Senate Armed Services Committee, the Senate Foreign Relations Committee and the Senate Select Committee on Intelligence.

**MARVIN M. MILLER** is a Senior Research Scientist in the Department of Nuclear Engineering and a member of the MIT Center for International Studies. After undergraduate work at the City College of New York he earned an M.A. in Physics from the University of Rochester and a Ph.D. in Electrical Engineering from the Polytechnic Institute of New York. Prior to joining MIT in 1976, Dr. Miller was an associate professor of electrical engineering at Purdue University working on laser theory and applications. His current research interests are arms control, particularly nuclear proliferation, and the environmental impacts of energy use. He has studied proliferation issues since 1977, including both country-specific and generic problems. In the former, his main interests are in the Middle East and South Asia, while in the latter he has concentrated on international safeguards and export controls for sensitive nuclear technologies. From 1984 to 1986, Dr. Miller was a Foster Fellow with the Nuclear Weapons and Control Bureau of the U.S. Arms Control and Disarmament Agency (ACDA) and is currently a consultant on proliferation issues for ACDA, the Lawrence Livermore National Laboratory, and the Brookhaven National Laboratory.

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**FACULTY**

**BARRY R. POSEN** is Professor of Political Science. His most recent book, *Inadvertent Escalation*, was released from Cornell University Press in Fall, 1991. His first book, *The Sources of Military Doctrine*, won the American Political Science Association's Woodrow Wilson Foundation Book Award for the best book published in political science in 1984, and Ohio State University's Edward J. Furniss Jr. Book Award for the best first book in the field of security studies. Dr. Posen did his undergraduate work at Occidental College and his graduate work at the University of California at Berkeley, where he earned an M.A. and Ph.D. Prior to coming to MIT, Dr. Posen was Assistant Professor of Politics and International Affairs at Princeton University. He has also held a number of prestigious positions: Guest Scholar at the Brookings Institution; Post-Doctoral Fellow at the Center for International Affairs at Harvard; Council on Foreign Relations International Affairs Fellow; Rockefeller Foundation International Affairs Fellow and Guest Scholar at the Center for Strategic and International Studies; and Woodrow Wilson Center Fellow, Smithsonian Institution. Dr. Posen's current activities include work on U.S. military strategy and force structure, regional military balance assessment, and nationalism.

**THEODORE A. POSTOL** is Professor of Science, Technology and National Security Policy in the Program in Science, Technology, and Society at MIT. He did his undergraduate work in Physics and his graduate work in Nuclear Engineering at the Massachusetts Institute of Technology. After receiving his Ph.D., Dr. Postol joined the staff of Argonne National Laboratory, where he used neutron, x-ray and light scattering, along

with computer molecular dynamics techniques, to study the microscopic dynamics and structure of liquids and disordered solids. Subsequently he went to the Congressional Office of Technology Assessment to study methods of basing the MX Missile, and later worked as a scientific adviser to the Chief of Naval Operations. After leaving the Pentagon, Dr. Postol helped to build a program at Stanford University to train mid-career scientists to study developments in weapons technology of relevance to defense and arms control policy. In 1990 Dr. Postol was awarded the Leo Szilard Prize from the American Physical Society.



HUANG ZUWEI

*Ted Postol in China.*

**GEORGE W. RATHJENS** became Professor in the Department of Political Science after service with the Institute for Defense Analyses, the U.S. Arms Control and Disarmament Agency, the Advanced Research Projects Agency of the Department of Defense, the Office of the President's Science Advisor, and the Weapons Evaluation Group of the Department of Defense. Dr. Rathjens received his B.S. from Yale University and completed his Ph.D. in chemistry at the University of California at Berkeley. He is active in a number of associations, including the Council for a Livable World of which he has been Chairman and the Federation of American Scientists of which he is Sponsor, Councilor, and Past Chairman. Dr. Rathjens' major policy interests are nuclear arms issues, post-Cold War international security questions, and environmental problems, with special emphasis on conflict and the environment.

**JACK RUINA** is Professor of Electrical Engineering. Dr. Ruina was an undergraduate at the City College of New York and did his graduate work at the Polytechnic Institute of Brooklyn, earning his M.E.E. and D.E.E. there. He has been granted the Outstanding Alumnus Award from both colleges. He taught at Brown

University and the University of Illinois; at the latter he also headed the Radar Division of the Control System Laboratory. While on leave from the University of Illinois, he served in several senior positions at the Department of Defense, the last being Director of the Advanced Research Projects Agency and was honored with the Fleming Award for being one of ten outstanding young men in government in 1962. He served on many government committees including a presidential appointment to the General Advisory Committee, 1969-1977 and acted as Senior Consultant to the White House Office of Science and Technology Policy, 1977-1980. He also held the post of President of the Institute for Defense Analyses. At MIT, he has held the position of Vice President for Special Laboratories and was Secretary of the MIT Faculty. Dr. Ruina is currently Vice Chairman of the Board of Trustees for MITRE Corporation. He was instrumental in establishing the Defense and Arms Control Program and was its first Director. Dr. Ruina's special interest is in strategic weapons policy.

**STEPHEN VAN EVERA** earned his B.A. in government from Harvard and his M.A. and Ph.D. in political science from the University of California at Berkeley. Dr. Van Evera works in several areas of international relations: the causes and prevention of war, U.S. national security policy, U.S. foreign policy, U.S. intervention in the Third World, international relations of the Middle East, and international relations theory. He has published on the causes of war, American foreign policy, American defense policy, and has a book forthcoming on the causes and prevention of war. From 1984-1987 he was managing editor of the journal *International Security*. He has taught international relations at Princeton, Tufts, and the University of California at Davis, as well as MIT. Dr. Van Evera has also held research fellowships at the Woodrow Wilson Center in their National Security Studies Program, and at the Harvard Center for Science and International Affairs.



**FACULTY**

MIKE DESCH

*"New England Professors" visit Joint Readiness Training Center, Ft. Polk, LA.*

**T**he nine working groups of the MIT Defense and Arms Control Studies Program bring together, usually on a weekly basis, faculty and students interested in examining a topic through individual and collaborative projects. Group sessions include research reviews, thesis presentations, guest speakers, and research design efforts. All groups report on their progress in the spring at a DACS symposium.

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**ASIAN SECURITY STUDIES**

**Richard Samuels**

*Working Group Leader*

**CONVENTIONAL FORCES**

**Barry Posen**

*Working Group Leader*

**DEFENSE/ENVIRONMENTAL PROBLEMS**

**Harvey Sapolsky & Stephen Meyer**

*Working Group Leaders*

**DEFENSE POLITICS**

**Harvey Sapolsky**

*Working Group Leader*

**FUTURE OF THE DEFENSE INDUSTRIES**

**Harvey Sapolsky**

*Working Group Leader*

**NEW DIRECTIONS IN SECURITY POLICY**

**George Rathjens & Carl Kaysen**

*Working Group Leaders*

**NON-PROLIFERATION STUDIES**

**Marvin Miller**

*Working Group Leader*

**POST SOVIET SECURITY STUDIES**

**Stephen Meyer**

*Working Group Leader*

**TECHNICAL STUDIES IN DEFENSE AND ARMS CONTROL POLICY**

**Ted Postol**

*Working Group Leader*



THE WHITE HOUSE

*The premature victory march for Somalia.*

## DACS SEMINARS

The DACS seminar series provides a forum for discussing current security topics and the varying disciplinary perspectives on security studies. They also provide an opportunity for scientifically knowledgeable individuals to join with DACS members in examining technical topics of current policy relevance. The sessions are open to the wider MIT and Boston area communities.

### Fall 1994

#### **September 21 — JOSEPH KOSTIMER**

Professor, The Moshe Dayan Center for Middle Eastern & African Studies, Tel Aviv University  
*The Search for Security After the Gulf War*

#### **September 28 — WILLIAM GREEN**

Executive Vice President, Young & Rubicam  
*Be All You Can Be: Recruiting Soldiers for the Post Cold War Army*

#### **October 5 — CARL BUILDER**

Senior Staff, RAND Corporation  
*Defense Planning: Calculus or Charade?*

#### **October 19 — STEVE FETTER**

Associate Professor, University of Maryland  
*The North Korean Problem: When Will It End?*

#### **October 26 — JAMES QUINLIVAN**

Vice President, RAND Corporation and Director, Arroyo Center  
*Force Requirements for Army Stability Operations*

#### **November 2 — CRAIG DORMAN**

Deputy Director for Research & Engineering, Department of Defense  
*Department of Defense Science & Technology Issues for the 21st Century*

#### **November 9 — STEVEN MILLER**

Director of Security Studies Program, CSIA, Harvard University  
*The Ukrainian Security Dilemma*

#### **December 7 — ROBERT PAPE**

Assistant Professor, Dartmouth College  
*Assessing the Gulf Air War*

#### **December 14 — NICHOLAS BELDECOS and ERIC HEGINBOTHAM**

Doctoral Candidates, Political Science, MIT  
*The Next Korean War*

### Spring 1995

#### **February 15 — MARVIN MILLER**

Senior Research Scientist, Department of Nuclear Engineering, MIT  
*How Well Do Nuclear Safeguards Work?*

#### **February 22 — JAMES GOODBY**

Ambassador, U.S. State Department  
*Status of US-Russian Negotiations on Warhead Dismantlement and the Dispersion of Plutonium*

#### **March 1 — PAUL GODWIN**

Professor, National War College  
*Peoples Liberation Army: Where Is It Headed?*

#### **March 8 — BRENT BRADLEY**

Vice President, RAND Corporation, and Director Project RAND  
*Policy Analysis for the Air Force: Observations of a Returned Expatriate*

#### **March 15 — ANNE-MARIE SLAUGHTER**

Professor of Law, Harvard University  
*Changing Mores in International Intervention*

#### **April 12 — DAVID HOLLOWAY**

Professor of Political Science, and Co-Director, Center for International Security and Arms Control, Stanford University  
*Stalin and the Bomb*

#### **April 26 — MICHAEL DESCH**

Assistant Director, Olin Institute, Harvard University  
*Dope-Smoking, Skirt-Chasing, Draft-Dodging Commander-in-Chief: Civil-Military Relations in the Clinton Administration*

#### **May 10 — NORMAN POLMAR**

Author of "Codename Downfall: Plan to Invade Japan & Why President Truman Had to Use the Bomb"

## THE FUTURE OF WAR SEMINARS

This is a seminar series offered jointly with Harvard University's Olin Institute for Strategic Studies. The organizers believe that the end of the Cold War has reduced greatly the likelihood of a major power war, but do not doubt that there is a future for war nevertheless. The series was created to explore how wars are likely to occur and to be fought in the coming decades. MIT hosted the sessions during the Fall 1994 semester; Harvard was the host for Spring 1995.

### September 22 — ERIC OLSON

Lieutenant Colonel, United States Army, Chief, Tactics Division, Ft. Benning, Georgia  
*The Lessons of Somalia*

### October 20 — RICHARD CLARKE

National Security Council, Executive Office of the President  
*Peacekeeping and Peacemaking: What Can and Should Be Done*

### November 30 — BERNARD TRAINOR

Lieutenant General (USMC ret), Kennedy School of Government  
*The Lessons of the Gulf War*

### February 23 — ROGER MASTERS

Professor of Political Science, Dartmouth College  
*The Invention of Modern Warfare*

### March 9 — JOHN ALEXANDER

Senior Staff, Los Alamos National Laboratory  
*Non-lethal Warfare*

### April 6 — RICHARD DANZIG

The Under Secretary of the Navy  
*Three National Security Risks for the Next Three Decades*

## SPECIAL SEMINARS, 1994/95

### SCOTT SAGAN — October 18, 1994

Assistant Professor of Political Science, Stanford University  
*Organization Theory and the Consequences of Nuclear Proliferation*

### DARYL PRESS — October 12, 1994

DACS PhD candidate in Political Science  
*Three Scenarios for Iraqi Victory in the Gulf*

## COMMANDER WILLIAM MCCULLOUGH

### — October 21, 1994

The Joint Staff

*The Joint Planning Process and Casualty Estimation*

## MAJOR GENERAL CHARLES D. LINK

### — November 17, 1994

Secretary of the Air Force and Air Force Chief of Staff Special Assistant for Roles and Missions

*Eliminating the Military's 'Duplicative Redundancy' ...the Air Force View*

(co-sponsored — hosted by the National Defense Fellows Program at Harvard)

## COLONEL DAVID PATTON

### — November 21, 1994

Army Fellow, Tufts University

*MP Operations in Low Intensity Conflicts*

## ADMIRAL HENRY CHILES

### — December 6, 1994

U.S. Commander in Chief, U.S. Strategic Command  
*U.S. Nuclear Force Posture*

## JEFFREY STARR — December 13, 1994

Principal Deputy, Threat Reduction Policy, Department of Defense

*Project Sapphire*

## ADMIRAL WILLIAM FLANIGAN

### — March 8, 1995

Commander in Chief of the U.S. Atlantic Fleet, and NATO Commander Western Frontier

*The Effects of Changing International and Federal Budget Realities on U.S. Military Policies*

## COLONEL ARNOLD CANADA — April 6, 1995

Dismounted Battlespace Laboratory, Fort Benning, GA  
*The 21st Century Land Warrior: Technical and Operational Issues*

(part of the MIT Communications Forum series)

## JOHN GOODMAN — April 14, 1995

Deputy Assistant Secretary of Defense for Industrial Affairs

*Defense Industry Restructuring*

## LIEUTENANT GENERAL J.T. SCOTT

### — May 17, 1995

Commanding General of the U.S. Army Special Operations Command (Airborne)

*Somalia and Beyond*

S E L E C T E D P U B L I C A T I O N S • 1 9 9 4 / 1 9 9 5

Carl Kaysen, Robert Pastor, and Laura W. Reed, editors, *Collective Responses for Regional Problems: The Case of Latin America and the Caribbean*, Cambridge, American Academy of Arts and Sciences, September, 1994.

George Lewis, "Previous Experiences with Ballistic Missile Attacks and Defenses," *Physics and Society*, October 1994, pp. 5-7.

George Lewis, "Land-Attack Cruise Missile Proliferation," In Wolfgang Liebert and Jurgen Scheffran, eds., *Against Proliferation — Towards General Disarmament* (Munster, Agenda verlag, 1995).

George Lewis and Li Bin, "Ballistic Missile Defense and the ABM Treaty," in *Beyond the NPT: A Nuclear-Weapon-Free World* (Darmstadt: International Network of Engineers and Scientists Against Proliferation, 1995).

David Mendeloff, "Explaining Russian Military Quiescence: The 'Paradox of Disintegration' and the Myth of a Military Coup," *Communist and Post-Communist Studies* (Vol. 27, No. 3) 1994.

Marvin Miller, "Israel and the Comprehensive Test Ban," in *The Comprehensive Test Ban*, edited by Eric Arnett, to be published by the Stockholm International Peace Research Institute (SIPRI).

Marvin Miller, "Weapons of Mass Destruction and Advanced Delivery Systems in the Middle East," in *Powder Keg in the Middle East: the Struggle for Gulf Security*, ed. by Jeffrey Kemp and Janice Stein (forthcoming).

Kevin O'Prey, "The Arms Export Challenge: Cooperative Approaches to Export Management and Defense Conversion," *Brookings Occasional Papers*.

Kevin O'Prey, "Russian Defense Conversion: The Need for a Strategic Partnership," A Twentieth Century Fund Book (forthcoming).

Paul Podvig and George Lewis, "U.S. Proposal Threatens ABM Treaty," *INESAP Information Bulletin*, July 1994.

Barry Posen, "Military Lessons of the Gulf War — Implications for Middle East Arms Control," in *Arms Control and the New Middle East Security Environment*, Shai Feldman and Ariel Levite, eds., Westview Press, Boulder, CO, 1994.

Barry Posen, "Competing U.S. Grand Strategies," with Andrew L. Ross, in *Strategy & Force Planning*, Strategy & Force Planning Faculty, eds., Newport, RI: U.S. Naval War College Press, 1995.

Barry Posen, "Nationalism, the Mass Army and Military Power," reprinted in *Global Dangers: Changing Dimensions of International Security*, an *International Security Reader*, edited by Sean M. Lynn-Jones and Steven E. Miller, MIT Press, 1995.

Barry Posen, "Bosnia: creating peace," Op Ed article, *The Boston Globe*, Saturday, June 3, 1995.

Barry Posen, review of Deborah D. Avant, *Political Institutions and Military Change: Lessons from Peripheral Wars* (Ithaca, NY: Cornell, 1994) for *Political Science Quarterly*, forthcoming in Summer 1995 issue.

George Rathjens, "Rethinking Nuclear Proliferation," *Washington Quarterly*, Winter 1995.

Harvey Sapolsky, review of Susan Bartlett Foote, *Managing the Medical Arms Race* in the *Journal of Health Politics, Policy, and Law* (Vol. 19, No. 3) Fall 1994.

Harvey Sapolsky, review of Colin Burke, *Information and Secrecy: Vannevar Bush, Ultra, and the Other Memex* in the *Journal of Military History* (Vol. 58, No. 4) October 1994.

Harvey Sapolsky, "Industrial Policy for Defense," (op-ed piece), the *Journal of Commerce*, October 13, 1994.

Harvey Sapolsky, review of Scott Sagan, *The Limits of Safety* in *The Journal of Interdisciplinary History* (Summer 1995).

**S E L E C T E D   P U B L I C A T I O N S   •   1 9 9 4 / 1 9 9 5**

Harvey Sapolsky, "Keeping America Safe Through Interservice Competition," for the Roles and Missions Commission, January 1995.

Harvey Sapolsky, "Trading Places: American and European Defense Industries After the Cold War," June 1995, New York Academy of Science Conference Proceedings (forthcoming).

Harvey Sapolsky, "Political Market Structure Constraints on Post-Cold War Acquisition Reform," with Eugene Gholz, prepared for the 1995 Acquisition Research Symposium, Defense Systems Management College, June 1995.

Brian Taylor, "Russian Civil-Military Relations After the October Uprising," *Survival; The IISS Quarterly* (Vol. 36, No. 4) Spring 1994.

Benjamin A. Valentino and Scott Sagan, "Nuclear Weapons Safety after the Cold War: Technical and Organizational Opportunities for Improvement" - a report on the NATO Advanced Research Workshop held August 25-27, 1994 (published by the Center for International Security and Arms Control at Stanford University).

Jim Walsh, "Combatting Nuclear Smuggling," *Boston Globe*, August 25, 1994.

**WORKING PAPERS**

Jim Walsh and Marvin Miller, "The Role of United States' Nuclear Weapons," DACS Working Paper No. 94-2, August 1994 (summary report of a conference of the same title held at MIT, February 3-4, 1994).

Avner Cohen, "Toward a New Middle East: Rethinking the Nuclear Question," DACS Working Paper No. 94-3, November 1994.

Sanford L. Weiner and Harvey M. Sapolsky, "The Road to the Future: Systems Integration at Hanscom AFB," DACS Working Paper No. 94-4, December 1994.

Kelly Greenhill, Judy Layzer, and Micky Tripathi, "Organizational Issues in the DOD/DOE Cleanup Effort," DACS Working Paper No. 95-1, November 1994 (summary report of a conference of the same title held at MIT, October 13-14, 1994).

Harvey M. Sapolsky, "Non-Lethal Warfare Technologies: Opportunities and Problems," DACS Working Paper No. 95-2, March 1995.

Harvey M. Sapolsky, "The Cost of Intervention and Isolation," DACS Working Paper No. 95-3, April 1995.

**RESEARCH JOURNAL**

**BREAKTHROUGHS**

Vol. IV, No. 1 Spring 1995

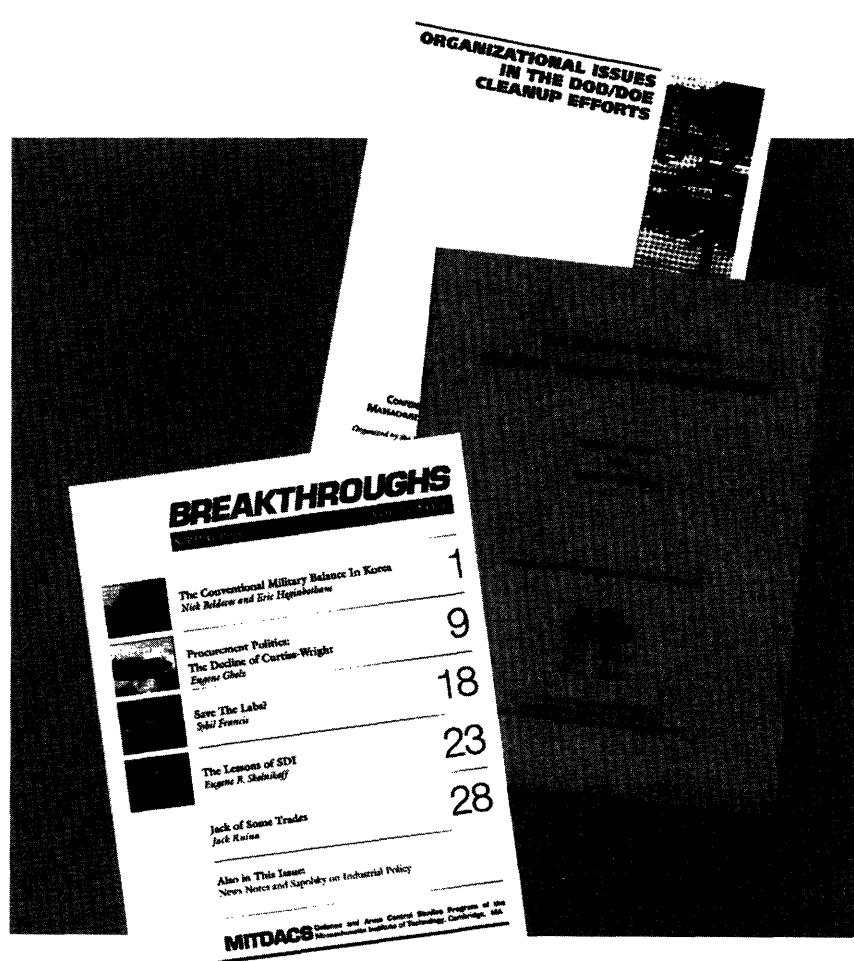
**DACS SEMINAR NOTES**

Summaries of the DACS Seminar Series presentations.

**DACS NEWSLETTER**

**DACS FACTS**

DACS Newsletter produced eight months per year.



**CARL KAYSEN**

- Visited the Joint Readiness Training Center at Fort Polk, Louisiana, January 23-25, 1995, to observe light forces training for peacekeeping and related missions.
- On January 30 & 31, 1995, attended a meeting of the UN Military Forces Study group launched a year ago along with the Institute of Policy Studies and the American Academy. The group is moving forward with their discussions of problems associated with a UN military force.
- In February, 1995, visited Japan where he spoke to three Japanese groups about American foreign policy, collective security, and the UN. The first group included people from Japanese business, academia, and journalism and was assembled at the International House. The second group was comprised of business people and was organized by the American Club of Tokyo, an activity of USIS. The third session was an informal, private meeting with senior officials in the Japanese Foreign Ministry.
- During the first week of March, 1995, visited the US Mission to the UN to discuss issues associated with UN peacekeeping.
- During the month of March, 1995, visited the UN Peacekeeping Organization, the military attache to the U.S. Mission to the UN, and the Army War College, Carlisle Barracks.
- On June 16, 1995, participated in a panel entitled the Economics of War and Peace as part of the 1995 Technology Day which recognized MIT's contribution to the Second World War.

**GEORGE N. LEWIS**

- Participated in the 6th Annual Summer Symposium on Science, Arms Control, and World Affairs, held in Oberwesel, Germany from July 8-18, 1994. This meeting was part of a series intended to help promote the development of technically-trained, independent arms control and international security researchers. Gave a talk titled, "An Overview

of the Current Status and Implications of U.S. Efforts to Develop Advanced Theater Missile Defenses."

- Participated in discussions at MITRE on December 6, 1994, on arms control issues of theatre missile defense.
- On January 31, 1995, gave a talk entitled "The Patriot Myth" at an Ohio State University Physics Department Colloquium.
- From June 12-16, 1995, took part in meetings and discussions on missile defense issues in China. The meetings were hosted by the Program for Science and National Security Studies at the Institute for Applied Physics and Computational Mathematics in Beijing. During these meetings, gave several talks on missile defense related issues.

**STEPHEN M. MEYER**

- In January, did a lengthy interview with CNN News Analysis, on Russian military operations in Chechnya, that was shown on CNN International which broadcasts to 200 countries around the world.
- Presented an analysis of Russian military involvement in the CIS states to the Policy Planning Staff at a State Department meeting held in February.
- In March, presented a paper on Russian security interests in the CIS states to a DOD and intelligence community conference.
- Participated in a DOD, State Department, intelligence community workshop on security concerns of the CIS countries, May, 1995.
- In May, presented an analysis of the decline of Russian military power at the Carnegie Corporation Conference on Russia.

**MARVIN M. MILLER**

- In early December, gave a talk at the Kennedy School of Government at Harvard University entitled "A Lament for Nuclear Power."

■ Visited Los Angeles in February, 1995, to discuss the issue of the proliferation implications of education of foreign nationals at US universities with Steven Sample, President of the University of Southern California. He also gave a talk on his research at MIT in the non-proliferation area at the RAND Corporation.

■ Attended a conference on the proposed fissile material cutoff convention and the disposition of excess weapons plutonium in Geneva in June 1995. The Conference was organized by the Interdisciplinary Research Group in Science, Technology and Security (IANUS) of the Technical University of Darmstadt, Germany.

#### **BARRY R. POSEN**

■ Gave a talk addressing the question: "What if Iraq had had Nuclear Weapons?" at a July 19, 1994 meeting at Lincoln Laboratory.

■ On August 26, 1994, attended the Navy ROTC change of command ceremony in which Capt. Michael Field turned over command of the joint MIT/B.U. ROTC program to Capt. Michael McHugh. The ceremony was held at the USS Constitution.

■ As co-director of Seminar XXI, attended a weekend session on ethnic conflict held September 30 - October 2, 1994, at the Aspen Institute's Wye Woods Conference Center near Washington, DC.

■ Attended a conference on "Nuclear Weapons and the Future Security Order on the Territory of the Former Soviet Union" as a presenter on the topic of Ukraine security. The conference, held on October 22 and 23, 1994, was sponsored by the Institute for European and International Studies in Luxembourg.

■ On Thursday, October 27, 1994, gave a talk on "Nationalism, Military Power, and War" to a CSIA Working Group at the Kennedy School of Government, Harvard University.

■ On November 23, 1994, met with a State Department sponsored multi-regional delegation of foreign defense and security officials to discuss current trends in U.S. policy. The delegation included representatives from China, Jordan, Lithuania, Pakistan, Namibia, the Philippines, and Yemen.

■ Was on National Public Radio on December 6, 1994 talking about Bosnia.

■ Visited the Joint Readiness Training Center at Fort Polk, Louisiana, January 23-25, 1995, to observe light forces training for peacekeeping and related missions.

■ Hosted the Seminar XXI January 9th, 1995 session on the "Future of Europe" which featured guest speakers John Mearsheimer and Andy Moravcsik.

■ Was on National Public Radio (with Chris Lydon) on February 28, 1995, talking about Hanscom Air Force Base, and US Grand Strategy.

■ On March 6, 1995, chaired a Seminar XXI meeting on nuclear proliferation.

■ In March, 1995, attended a conference concerning a joint German-American study on refugees. The conference was held at the American Academy.

■ Gave a talk on "Future Ukrainian Defense Operations" at a conference at Yale University on Saturday, April 8, 1995.

■ On Friday, April 14th, 1995, was briefed by the Roles and Missions Commission.

■ Chaired the afternoon panel session at the 1995 General Doolittle Workshop on April 19, 1995.

■ On June 16, 1995, participated in a panel entitled the Economics of War and Peace as part of the 1995 Technology Day which recognized MIT's contribution to the Second World War.

#### **THEODORE A. POSTOL**

■ October 4, 1994, lectured at Sloan School of Management on Bureaucratic Politics of Patriot.

■ On November 23, 1994, met with a State Department sponsored multi-regional delegation of foreign defense and security officials to discuss current trends in U.S. policy. The delegation included representatives from China, Jordan, Lithuania, Pakistan, Namibia, the Philippines, and Yemen.

■ Participated in discussions at MITRE on December 6, 1994, on arms control issues of theatre missile defense.

■ Met with the Committee on International Security and Arms Control, National Academy of Sciences, Washington, DC, on March 2, 1995, to discuss future activities of the Committee in studying missile proliferation

**OUTSIDE  
PROFESSIONAL  
ACTIVITIES**

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**OUTSIDE  
PROFESSIONAL  
ACTIVITIES**

and control, defenses against TBM, ICBM, cruise missiles, and the like.

- Was a lecturer at Stanford University's "Radiology #237, Modern Warfare" class on February 11, 1995.
- Was presented the 1995 American Association for the Advancement of Science's Hilliard Roderick Prize, on February 18, 1995, as part of the Association's Annual Meeting which took place in Atlanta, Georgia. He was chosen as the recipient of the prize for his expertise in and presentation of important technical analyses related to a number of controversial issues, including strategic and tactical missile defenses, the potential effects of superfires from nuclear attacks near urban areas, and potential civilian casualties from nuclear counterforce attacks.
- Lectured to Committee on International Security & Arms Control, National Academy of Sciences, on "US Missile Defense Programs and their Implications for the ABM Treaty," March 3, 1995.
- Lectured at Olin Institute, Harvard University, "Abandoning the ABM Treaty Without Knowing It," April 10, 1995.
- From June 12-16, 1995, took part in meetings and discussions on missile defense issues in China. The meetings were hosted by the Program for Science and National Security Studies at the Institute for Applied Physics and Computational Mathematics in Beijing. During these meetings, gave several talks on missile defense related issues.
- Participant at Institute for Defense Analyses' "Laboratory Infrastructure Capabilities Study," June 21-23, 1994.

**GEORGE W. RATHJENS**

- In August, 1994, attended the annual meeting of the Aspen Strategy Group in Aspen, Colorado.
- Attended a meeting held in late September at Yale University on the "Problems of Environment & Security." The session was hosted by the School of Forestry and Environmental Studies.
- Visited the Joint Readiness Training Center at Fort Polk, Louisiana, January 23-25, 1995, to observe light forces training for peacekeeping and related missions.

- On January 30 & 31, 1995, attended a meeting of the UN Military Forces Study group launched a year ago along with the Institute of Policy Studies and the American Academy. The group is moving forward with their discussions of problems associated with a UN military force.
- During the first week of March, 1995, visited the US Mission to the UN to discuss issues associated with UN peacekeeping.
- During the month of March, 1995, visited the UN Peacekeeping Organization, the military attache to the U.S. Mission to the UN, and the Army War College, Carlisle Barracks.
- On June 16, 1995, participated in a panel entitled the Economics of War and Peace as part of the 1995 Technology Day which recognized MIT's contribution to the Second World War.

**JACK RUINA**

- Gave a keynote address at the NATO Advanced Studies Institute on "Monitoring a Comprehensive Test Ban Treaty," held in Alvor, Portugal January 23, 1995 to February 2, 1995. The title of his talk was "Attempts to Ban Nuclear Tests: A Disappointing Story."

**HARVEY M. SAPOLSKY**

- Met with General Bernard Trainor and John White, of the Roles and Missions Commission, on July 1, 1994 at the Kennedy School of Government to discuss the problem of military innovation.
- Was the July 7 luncheon speaker at the MIT Lean Aircraft Initiative Working Group sessions held at the Cambridge Hyatt Regency July 7-8, 1994. His topic was structural reform of the aerospace industry.
- Was the discussant for Philip Morrison's presentation "Thugs and Aircraft Carriers and How to Tell the Difference" at the October 18, 1994 session of the MIT Technology and Culture Seminar, an Institute-wide series on the social, economic, and moral implications of technology.

- Spoke at an October 26, 1994 session with the 1994-95 Knight Science Journalism Fellows. The presentation described trends in science funding after the Cold War, and outlined the implications for the support of academic science.
- Gave a talk at a meeting of the innovation task force of the Chief of Naval Operation's Executive Panel on November 10, 1994 in Washington, DC.
- Participated in the 18th Annual Air and Space Power Symposium November 14-18, 1994 at the Air Force Wargaming Institute, Maxwell Air Force Base in Montgomery, Alabama.
- On November 23, 1994, met with a State Department sponsored multi-regional delegation of foreign defense and security officials to discuss current trends in U.S. policy. The delegation included representatives from China, Jordan, Lithuania, Pakistan, Namibia, the Philippines, and Yemen.
- Participated in a December 8, 1994 Workshop in Cambridge that the Institute for Foreign Policy Analysis held on Undersea Warfare Planning, Capabilities and Technologies for the 21st Century.
- Spoke on the changing rationales for the public patronage of science that explored the policy effects of Vannevar Bush's famous 1945 report on science at a December 9, 1994 symposium at Columbia University.
- Was a guest speaker at the MIT Navy ROTC Program on Wednesday, November 30, 1994. He discussed the Navy's role in the U.S. defense establishment and the effect of casualties on U.S. policy.
- On January 10, 1995, attended the concluding meeting in Washington, DC of the Secretary of Energy's Task Force on Alternative Futures for DOE's National Laboratories. His year long participation on the Task Force focused on the future of the weapons laboratories. The Task Force report was released on February 1st.
- Visited the Joint Readiness Training Center at Fort Polk, Louisiana, January 23-25, 1995, to observe light forces training for peacekeeping and related missions.

- On February 6, 1995, participated in a briefing on Hanscom AFB for Secretary of the Air Force Sheila Widnall, convened by Senator Edward Kennedy and that included Governor Weld, Senator Kerry and much of the Massachusetts Congressional delegation along with business and community leaders.

- Gave a presentation with Owen Cote on the politics of lift in Olin Institute's seminar series, February 6, 1995 at Harvard's Center for International Affairs.

- Gave a presentation on the future of the DOE laboratories at the Petroleum Industry Research Executives meeting that was held on February 10, 1995, at MIT's Endicott House in Dedham, Massachusetts.

- On March 22, 1995, met with the Cambridge based members of the Commission on Roles and Missions.

- Met with executives at McDonnell Douglas in St. Louis, Missouri on March 30, 1995 to discuss industrial base, dual use, commercial subsidy and lift issues.

- Participated in an April 3, 1995 dinner/seminar on European security issues led by Ambassador Winfried Lang, Austria's Representative to the UN Office in Geneva and currently Austria's representative at NATO.

- Chaired a roundtable session on "The Transformation of the Defense Industry" on Friday, April 7, 1995 as part of the MIT Industrial Performance Center's International Conference on the Future of Industry in Advanced Societies.

- Visited Lockheed Martin Tactical Aircraft Division in Fort Worth on May 24/25, 1995, to discuss industrial base issues.

- Gave the keynote address entitled "Changing Places" at a symposium on Technological Innovation in the post-Cold War era that the Italian Trade Commission and the New York Academy of Sciences held May 30/31, 1995 in New York City.

- Gave a June 10 seminar at MIT on current issues affecting the U.S. aerospace industry to a delegation from the German Federal Ministry of Economies.

- On June 16, 1995, chaired a panel entitled the Economics of War and Peace as part of the 1995 Technology Day which recognized MIT's contribution to the Second World War.

#### OUTSIDE

#### PROFESSIONAL

#### ACTIVITIES

**ORGANIZATIONAL ISSUES IN THE DOD/DOE CLEANUP EFFORTS**

*October 13 & 14, 1994 — MIT Faculty Club*

The conference examined the key issues surrounding Department of Defense (DOD) and Department of Energy (DOE) efforts to deal with the environmental legacy of the Cold War. Over 100 industry, government, and academic specialists from around the country attended. Featured as speakers were Gary Vest, Principal Assistant Deputy Under Secretary of Defense for Environmental Security, Thomas Grumbly, Assistant Secretary for Environmental Restoration and Waste Management for DOE, and Major General Pat Stevens, Deputy Commander of the U.S. Corps of Engineers. Topics covered included disposal of chemical wastes, battlefield cleanups, and community participation in setting facility cleanup standards.

**FORCE PROJECTION AND SUSTAINMENT CONFERENCE**

*March 23 & 24, 1995 — Sheraton Commander*

Despite the soft ending of the Cold War, the world remains a turbulent place, filled with conflict and risk. The role the United States will play in the post-Cold War era is still being defined. There is no shortage of places to go and things to do if the nation decides to utilize the capabilities, available and potential, of the U.S. military for international peacekeeping and peacemaking. Assuming the choice is for continued intervention abroad, often against the wishes of an opponent military force, what are the power projection forces that are needed to assure success? What forced entry capabilities exist and how best can they be used? What are the lift and sustainment resources required to project and assert U.S. military power effectively?

This conference provided an informed forum to debate the central issues involved in force projection in the service of peacekeeping and peacemaking missions. Panel discussions were organized according to three themes: forced entry alternatives, lift requirements and capabilities, sustainment and withdrawal operations. The keynote speaker, General Henry H. Shelton, US Army, Commander of the XVIII Airborne Corps, described Operation Restore Democracy in Haiti which he commanded. The conference was attended by over sixty senior military officers, academics, and policy researchers and was co-hosted by DACS and the Olin Institute for Strategic Studies.

**2ND ANNUAL GENERAL JAMES H. DOOLITTLE WORKSHOP & DINNER**

*April 19, 1995 — Cambridge Marriott and MIT Faculty Club*

This symposium examined the role of airpower in the Gulf War. Specifically it explored the value of alternative targeting policies and the relative impact of ground and air operations in determining the outcome of the war. The intent of the effort was to draw the air war's lessons for future U.S. strategy and force structure. The conference was organized around two panels: a morning session on "Airpower in Desert Storm: A View from the Planners and Operators," and an afternoon discussion, "Airpower in Desert Storm: The Academic Perspective." Nearly 20 speakers participated including LTG Calvin Waller, USA (Ret), Deputy CINC during Desert Storm, and LTG Thoms Kelly, USA (Ret), General Powell's Operations Officer and chief spokesman during the war.

The sessions were cosponsored by DACS, the Olin Institute for Strategic Studies at Harvard's Center for International Affairs and the International Strategic Studies Program of the Kennedy School's Center for Science and International Affairs. Especially helpful in the planning of the sessions was Professor Robert Pape of Dartmouth who is the author of a forthcoming analysis of strategic bombing titled *Bombing to Win: Airpower and the Politics of Coercion*.

A portrait of the Doolittle raid aircraft leaving the deck of the USS HORNET was on display, having recently been acquired by the MIT Air Force ROTC Unit. Each year, the keynote speaker for the Doolittle dinner will sign the portrait's commemoration plaque. The portrait will be on exhibit at the unit's quarters.

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**CONFERENCES  
AND SYMPOSIA**



*BG B.B. Bell (USA); Gen. Charles Horner (USAF Ret), Richard Hallion, the Air Force Historian at Doolittle workshop.*

**T**he Program's courses — what MIT prefers to call subjects — are open to all students eligible to attend classes at MIT, including cross-enrollees from Harvard and Wellesley. Most of the subjects are offered at the graduate level and through the Political Science Department.

Political Science doctoral candidates may use Defense and Arms Control Studies as one of their fields of concentration. Within that context, defense and arms control studies has two principal objectives: first, it introduces the student to the study of American defense policy, including the policy process, arms control, force structure, and military budgets. Second, it introduces the student to the study of the role of force in international politics and how countries have historically pursued their security interests. Students are expected to develop competence in the methods of systems analysis, technology assessment, and strategic reasoning that shape the size and composition of U.S. strategic nuclear and general purpose forces. The international military competition, the prospects for arms control and their implications for U.S. force planning receive special consideration in several subjects. Others examine some of the same issues by contrasting U.S. experiences and approaches with those of rivals and allies.

Students who plan to offer Defense and Arms Control Studies for the general examination take two subjects from those listed below in the Forces and Force Analysis section, and one subject each from the listing in the Defense Politics and in the Comparative Defense Policy sections. Competence in technical analysis is required. A background in economics to intermediate level with particular emphasis on macroeconomics and public finance is advisable. The subjects in the Forces and Force Analysis section will provide sufficient review of the technical approaches to be examined.

The write-off requirement is three subjects with equal distribution among the three sections preferred although approval for alternative distributions may be granted in consultation with field faculty. A number of substantive fields in the Political Science Department deal with important determinants of U.S. defense programs and expenditures. Among the most closely related are: Science, Technology and Public Policy; American Politics; International Relations and Foreign Policy; and Soviet Studies. Students of defense policy are also encouraged to take subjects in economics.

## **FORCES AND FORCE ANALYSIS**

### **17.476      Analysis of Strategic Nuclear Forces (Postol) STS 516      [G]**

Introduces the assessment of strategic nuclear forces. Emphasizes the development of force requirements and methods of analyzing alternative force postures in terms of missions, effectiveness, and cost. The history of U.S.-Soviet strategic competition provides the backdrop against which the evolution of nuclear strategy and forces is considered.

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### **17.477      Technology and Policy of Weapons Systems STS.076      (Postol) [U]**

**TEACHING  
AT DACS**

Examines in detail the technology of nuclear weapons systems. Topics include nuclear weapons design, effects, targeting, and delivery; ballistic and air breathing missile propulsion and guidance; communications and early warning techniques and systems; and anti-missile, air, and submarine systems. Combines the discussion of technical materials with the national security policy issues raised by the capabilities of these technologies. Considers security issues from the distinct and often conflicting perspectives of technologists, military planners, and political leaders.

### **17.482/483    U.S. General-Purpose Forces (Posen/Postol) [U/G]**

Based on the concept of Grand Strategy as a system of inter-connected political and military means and ends. Topics covered include U.S. grand strategy, the organization of the U.S. military, the defense budget, ground forces, tactical air forces, naval forces, power projection forces, and the control of escalation. Particular episodes of military history that offer insights into current conventional forces issues are examined. Graduate students are expected to pursue the subject at greater depth through reading and individual research.

## **AMERICAN DEFENSE POLITICS**

### **17.460      Defense Politics (Sapolsky) [G]**

Examines the politics affecting U.S. defense policies. Includes consideration of intra- and inter-service rivalries, civil-military relations, contractor influences, congressional oversight, peace movements in historical and contemporary perspectives, and U.S. defense politics before, during, and after the Cold War.

### **17.471      American National Security Policy (Meyer) [U]**

Introduces the student to the problems and issues confronting American national security and the process by which American national security policy is formulated. The nature of the international system (post-World War II), the theoretical requirements for deterrence and defense, and alternative strategies for implementing American national security policy are discussed. The roles of the President, National Security Council, Department of Defense and armed services, the Congress, and public opinion in formulating national security policy are examined.

## COMPARATIVE DEFENSE POLICY

### 17.462      **Innovation in Military Organizations (Posen and Sapolsky) [G]**

Explores the origins, rate, and impact of innovations in military organizations, doctrine, and weapons. Emphasis on organization theory approaches. Comparisons with non-military and non-U.S. experience included.

### 17.484      **Comparative Grand Strategy and Military Doctrine (Posen) [G]**

A comparative study of the grand strategies and military doctrines of the great powers in Europe (Britain, France, Germany, and Russia) from the late 19th to the mid-20th century. Examines strategic developments in the years preceding and during World Wars I and II. What factors have exerted the greatest influence on national strategies? How may the quality of a grand strategy be judged? What consequences seem to follow from grand strategies of different types? Open to undergraduates with permission of instructor.

## ADVANCED AND CROSS-FIELD OFFERINGS

### 17.465      **The Nuclear Age (Rathjens and Ruina) [U]**

Based substantially on the 13-part public television series "War and Peace in the Nuclear Age." Includes the history and technology of nuclear weapons, including the discovery of fission; the development of fission and fusion weapons; nuclear testing and efforts to control the technology; problems in the proliferation of weapons; advanced nuclear weapons technologies; changing perceptions about the role of nuclear weapons in world affairs. [Engineering school-wide elective]

### 17.479/480      **Technology, Politics, and Weapons Choice (Postol) [U/G]** STS.519

Analyzes decisions to develop or acquire new weapons systems that had, or could have had, a major influence on the arms race. Examines the interplay of political and technical factors in the decision-making process. Representative weapons systems include the hydrogen bomb, the nuclear-powered submarine, tactical nuclear weapons, the Polaris submarine-launched ballistic missile, the B-1 bomber, MIRVs, the Moscow anti-ballistic defense, the U.S. Safeguard/Sentinel missile defense, and others. Graduate students are expected to pursue the subject at greater depth through reading and individual research.

**D A C S - A F F I L I A T E D D E G R E E R E C I P I E N T S • 1 9 9 4 / 1 9 9 5**

**Laura W. Reed**

PhD in Political Science, February 1995

*The Roads Not Taken: The U.S. Security Debate Over Germany, 1944-1949*

Thesis Committee: George Rathjens (Chair), Carl Kaysen, Steven Miller (Harvard)

**Jeffrey Starr**

PhD in Political Science, May 1995

*Negotiating Abroad to Win at Home: Arms Control and Nuclear Strategy in the 1980s*

Thesis Committee: George Rathjens (Chair), William Griffith, Harvey Sapolsky

**Sybil Francis**

PhD in Political Science, June 1995

*Warhead Politics: Livermore and the Competitive System of Nuclear Weapons Design*

Thesis Committee: Harvey Sapolsky (Chair), George Rathjens, Steve Miller (Harvard)



**G R A D U A T E S T U D E N T S • 1 9 9 4 / 1 9 9 5**

**PRE-GENERALS OR MASTER'S STUDENTS**

**Alexander Neff** University of Michigan (Political Science/Japanese)

**Chikako Ueki** Sophia University (International Relations/French)

**Jeremy Shapiro** Harvard University (Government)

**Benjamin Valentino** Stanford University (Politics)

**Christopher Twomey** University of California, San Diego (Economics/International Affairs)

**Jacob Zimmerman** Princeton (Politics)



*Jacob Zimmerman, David Burbach, and Nicholas Beldecos at the Doolittle workshop.*

**PH.D. CANDIDATES — POST-GENERALS**

<b>Nicholas Beldecos</b>	Princeton University (Politics)	<b>Kenneth Pollack</b>	Yale University (Political Science)
<b>David Burbach</b>	Pomona College (Government)	<b>Daryl Press</b>	University of Chicago (Political Science)
<b>Dean Cheng</b>	Princeton University (Politics)	<b>Jeffrey Sands</b>	Amherst College (American Studies)
<b>Owen Cote</b>	Harvard University (Social Studies)	<b>Taylor Seybolt</b>	Haverford College (Political Science)
<b>Randall Forsberg</b>	Barnard College (English)	<b>Robert Snyder</b>	United States Military Academy (Social Science)
<b>Eugene Gholz</b>	MIT (Political Science/Materials Science and Engineering)	<b>Brian Taylor</b>	University of Iowa (Political Science) London School of Economics (Soviet Politics)
<b>Peter Goldstone</b>	University of Chicago (Political Science)	<b>Trevor Thrall</b>	University of Michigan (Political Science)
<b>Eric Heginbotham</b>	Swarthmore College (Political Science)	<b>James Walsh</b>	Brown University (Philosophy)
<b>Dana Isaacoff</b>	Cornell University (Labor Relations) New School for Social Research (Media)	<b>Sharon Weiner</b>	Northeast Missouri State University (Political Science/Economics) Lancaster University, England (Strategic Studies)
<b>Jane Kellett</b>	Oberlin College (English)	<b>Richard Wilcox</b>	The Citadel Georgetown University (International Studies)
<b>Jonathan Ladinsky</b>	University of Chicago (Political Science)	<b>Robert Zirkle</b>	University of Illinois (Physics, Political Science)
<b>Dana Lindley</b>	Tufts University (International Relations/French)		
<b>Kevin O'Prey</b>	Grinnell College (International Relations)		



*Sharon Weiner visits the Navy.*

**Li Bin**

*Visiting Scholar*

Li Bin received his Bachelor and Master degrees in physics from the Beijing University. He began to work on technical issues in arms control in 1990 and got his Ph.D. in 1993 from the Beijing Institute of Applied Physics and Computational Mathematics. Dr. Li is an assistant research fellow at IAPM's Program for Science and National Security Studies. He is now funded by a Postdoctoral Fellowship on International Peace and Security in a Changing World of the SSRC-MacArthur Foundation and is taking the first year of his training at DACS. His study focus is the verification issue of a CTB and he is also interested in the issue of missile defenses.

**Avner Cohen**

*Visiting Scholar*

Avner Cohen, co-director (with Dr. Marvin Miller) of the project on Nuclear Arms Control in the Middle East, has written for over a decade on nuclear weapons-related issues, primarily the question of nuclear deterrence and morality. He has taught philosophy at Tel Aviv University, been a visiting faculty at various American universities and a fellow at the Harvard Center for Science and International Affairs. Dr. Cohen earned his PhD in 1981 from the Committee on History of Culture of the University of Chicago.

**Anatoli Diakov**

*Visiting Scholar*

Anatoli Diakov is a physicist who graduated from the Moscow Institute of Physics and Technology (MPTI) in 1972 and received his Ph.D. in Physics in 1975. He spent several months at DACS performing independent research on plutonium disposition and the economics of nuclear fuel cycles. The W. Alton Jones Foundation sponsored his visit. Dr. Diakov organized the Center for Arms Control, Energy and Environmental Studies at MPTI. He helped to build up a program in arms control policy at MPTI as well as trained specialists to study developments in energy production of environmental concern.

**Lisbeth Gronlund**

*Research Fellow*

Lisbeth Gronlund is a Senior Staff Scientist at the Union of Concerned Scientists, a public interest research group based in Cambridge, MA. After receiving a PhD in theoretical physics from Cornell University in 1988, she made her first foray to DACS, spending two years as a postdoctoral fellow. She then became a senior visiting scholar in the Center for International Security Studies at the University of Maryland, College Park, and is currently on the Executive Committee of the American Physical Society's Forum on Physics and Society. Dr. Gronlund's research has focused on technical aspects of arms control, and she has written on the issues of depressed-trajectory ballistic missiles, space-based and ground-based ballistic missile defenses, and the proliferation of ballistic missiles. She is currently carrying out a study, with other members of the DACS Technical Working Group, on the implications of advanced theater missile defenses for the ABM Treaty.

**Lieutenant Colonel Michael W. McKeeman***United States Army War College Fellow*

Mike McKeeman is a career Field Artilleryman. A 1973 graduate of the United States Military Academy at West Point, N.Y., Mike received a Masters Degree in Management and Human Relations from Webster University and a Master Degree in Military Arts and Sciences from the School of Advanced Military Studies at the Command and General Staff College, Ft. Leavenworth, Kansas. His operational assignments have included tours in Germany, Saudi Arabia, and at a variety of locations across the continental United States. His most recent assignment was at Ft. Campbell, Kentucky, where he commanded a Field Artillery battalion in the 101st Airborne Division (Air Assault).

**Captain John Richard Miller***Navy Federal Executive Fellow*

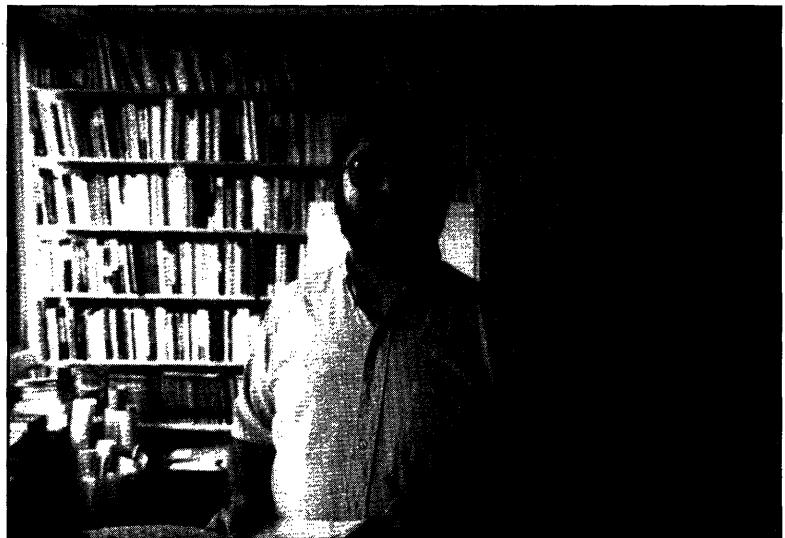
Captain Miller is a Naval Flight Officer and a subspecialist in Strategic Planning, Anti-Submarine Warfare and Financial Management. He has served in numerous at-sea assignments including Officer in Charge Patwing One det. Kadena, Japan and Commander Task Group Seven Two PT Two. As Commanding Officer of Patrol Squadron Eleven, he served in Desert Shield. Rich's shore assignments include Commander Patrol & Reconnaissance Force Seventh Fleet in Kamaseya, Japan, Naval Post Graduate School where he earned a Masters in Political/Military Affairs, Naval War College where he earned a Masters in National Security Affairs, and the Office of the Under Secretary of Defense, Personnel and Readiness. His last assignment was in the office of the Deputy Secretary of Defense for Drug Enforcement Plans and Support where he was responsible for the Department's Counter-drug budget. Rich is pursuing a doctorate in Technology and Humanity.

**Paul Podvig***Post-Doctoral Fellow*

Paul Podvig, a laser physicist from Russia, is working with Professor Ted Postol on ballistic missile defense-related issues. A 1988 graduate of the Moscow Institute of Physics and Technology (MPTI), he has been an assistant professor in MPTI's General Physics Department since 1990. Paul is a staff member of the MPTI Center for Arms Control, Energy and Environmental Studies. Paul completed a translation of Soviet Nuclear Weapons (a publication of the Natural Resources Defense Council). The W. Alton Jones Foundation has sponsored his visit.

**Sanford Weiner**  
*Visiting Scholar*

Sanford Weiner is a Visiting Scholar at the Center. Before coming to CIS, he was on the staff at the Energy Laboratory and the Center for Technology, Policy and Industrial Development. His research interests focus on the inter-



**DACS VISITORS**

SHARON WEINER

*Sandy Weiner making a point.*

play of international and domestic public policy making in technical areas. With James Maxwell he conducted a study of the phase-out of CFCs because of concerns about their impact on the ozone layer. The study looked at the interaction of scientific groups, governments, and corporations in bringing about this shift. He is now working closely with Harvey Sapolksy on issues of the closing or conversion of former DOD bases and DOE production sites, and the environmental restorations that may be necessary at many of them. He has also collaborated with Sapolksy on studies of state and federal health care reform.

**David Wright**  
*Research Fellow*

David Wright received his PhD in theoretical condensed matter physics from Cornell University in 1983, and held physics research positions until 1988. He received an SSRC-MacArthur Fellowship in International Peace and Security to retrain in international security issues, and spent two years in the Center for Science and International Affairs at Harvard University. Thereafter he joined the staff of the Federation of American Scientists as a Senior Arms Control Analyst and is now a Senior Staff Scientist at the Union of Concerned Scientists. He is a member of the Social Science Research Council's Committee on International Peace and Security. Dr. Wright's recent research has included depressed-trajectory SLBMs, strategic defenses after the Cold War, and the proliferation of ballistic missiles and nuclear weapons. At DACS he has focussed on the distinction between tactical and strategic missile defenses and an evaluation of the proposed Theater High Altitude Area Defense (THAAD) system, and the implications of advanced missile defense systems for the ABM Treaty.

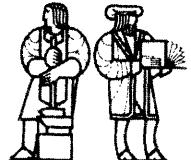
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